

## REMARKS

### A. Amendments to the Specification

The specification has been amended to clarify the continuing data, the duplicated text noted in the present Office action having now been deleted by this Amendment B. (See, e.g., page 2, paragraph 4 of the Office action.) Additionally, in view of this amendment to the specification, it is to be noted that the first sentence of the specification now includes an indication that the prior PCT international application was published under PCT Article 21(2) in English. (See, e.g., page 2, paragraphs 5 and 6 of the Office action.)

Accordingly, it is respectfully submitted the objections raised in the present Office action have been satisfactorily addressed by this Amendment B.

### B. Effective Filing Date of Pending Claims 1-24

The statements related to the effective filing dates of pending claims 1-24 are acknowledged. These dates will be addressed below, to the extent necessary to respond to the rejections raised in this Office action. Applicants respectfully reserve the right to further address these dates, as necessary, at a later time.

### C. Status of the Claims

In this Amendment B, claims 1, 14, 15, 18, and 20 have been amended, claim 19 has been cancelled, and claims 25-34 have been added. Accordingly, claims 1-18 and 20-34 are now pending.

Claims 18 and 20 have been amended for purposes of clarification, while claims 1, 14 and 15 have been amended for purposes of clarification as well as to more particularly claim certain embodiments of the present invention. Support for the amendments to claims 1, 14 and 15, as well as for the addition of new claims 25-34, may be found in the specification, for example, as follows:

- claim 1: See, e.g., page 8, lines 25-28, as well as the Examples (e.g., Table 1).

- claim 14: See, e.g., page 4, lines 16-27.
- claim 15: See, e.g., page 9, lines 7-20.
- claim 25: See, e.g., original claims 1 and 2;
- claims 26-34: See, e.g., original claims 5, 3, 6, 8, 11, 9, 12, 13 and 20, respectively.

**D. 35 U.S.C. §112, Second Paragraph (Vague/Indefinite)**

Reconsideration is respectfully requested of the rejection of claims 18 and 20 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

Claim 18 has been amended to depend from claim 17, while claim 20 has been amended as suggested in the present Office action (see, e.g., page 3, paragraph 4 therein). Accordingly, Applicants respectfully submit these claims now satisfy the requirements of 35 U.S.C. §112, second paragraph.

Claim 19 has been cancelled, thus obviating the need to address the issue raised by the Office with respect to this claim.

**E. 35 U.S.C. §112, First Paragraph (Enablement)**

Reconsideration is respectfully requested of the rejection of claims 1, 4-7, 10-13, 17, 18, and 20-24 under 35 U.S.C. §112, first paragraph, as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to make or use the invention commensurate in scope with these claims. The Office's rejection is based upon the assertion that these claims fail to define a concentration or amount of Europium for the phosphor.

A specification must be taken as in compliance with the enablement requirement of 35 U.S.C. §112, first paragraph, unless there is a reason to doubt the objective truth of the statements contained therein which must be relied on for the enabling support. (See, e.g., *In re Marzocchi*, 439 F.2d 220, 223-4 (CCPA 1971); see also MPEP §2164.04). As a result, the burden rests on the Patent Office to establish a *prima facie* case of nonenablement, which requires the Office to provide acceptable evidence or

reasoning inconsistent with the contested statements. (*Id.*; see also *In re Strahilevitz*, 668 F.3d 1229, 1232.)

In this instance, Applicants respectfully submit the Office has failed to establish a *prima facie* case of nonenablement with respect to the invention as defined by claims 1, 4-7, 10-13 and 17-24. Specifically, the Office has provided no evidence or reasoning to support its assertion that these claims contain subject matter which is not described in the specification in such a way as to enable one skilled in the art to make or use the invention commensurate in scope with these claims. Further, Applicants respectfully submit the Office has failed to apply the standard for determining whether the specification meets the enablement requirement which, pursuant to MPEP §2164.01, effectively requires the Office to provide evidence or reasoning that the experimentation needed to practice the invention as claimed is undue or unreasonable. (See, e.g., *In re Wands*, 858 F.2d 731, 737.)

The Office has offered no evidence or reasoning to suggest that, in view of the disclosure provided, one of ordinary skill in the art would have to engage in undue experimentation to determine the full scope of the range of Europium concentrations that are operable in the present invention. Rather, the Office has merely relied on a general statement that enablement is lacking in this instance, without further support. Furthermore, claims 5, 6, 11 and 12 depend directly or indirectly from claims 2 or 3, which have not been rejected and which clearly include a concentration range for Europium.

In view of the forgoing, reconsideration of this rejection is respectfully requested.

#### **F. 35 U.S.C. §102 Rejection**

##### **1. 102(b)**

Reconsideration is respectfully requested of the rejection of claims 1, 20 and 21 under 35 U.S.C. §102(b) as being anticipated by Pedrero et al.

As amended, claim 1 is directed to a method for producing a CsX:Eu stimuable phosphor, wherein X represents Br or a combination of Br and Cl; that is, as amended, claim 1 is directed to a stimuable phosphor which contains bromine. Pedrero et al. clearly fail to disclose a method of producing such a phosphor. In fact, they make no reference to bromine in this context. Rather, Pedrero et al. only disclose the

preparation of a CsCl:Eu phosphor, prepared by combining CsCl and  $\text{EuCl}_2$ . Thus, claim 1 is not anticipated.

In relevant part, claim 20 is directed to the compound prepared according to the method of amended claim 1. Accordingly, claim 20 is not anticipated by Pedrero et al. for the same reason as set forth with respect to claim 1.

Claim 21 is directed to a phosphor characterized by the formula  $\text{CsX:Eu}$ , wherein X is selected from the group consisting of Br, Cl and combinations thereof, which exhibits a blue photoluminescence and a red photoluminescence when excited with radiation of 254 nm, wherein the blue photoluminescence has a power that is at least 100 times higher than the red photoluminescence. In contrast, Pedrero et al. fail to disclose, or make any reference to, such a phosphor. In fact, they fail to disclose a phosphor which even exhibits both a blue and a red photoluminescence. Further, contrary to the Office's assertion, Applicants respectfully submit the CsCl:Eu phosphor prepared by Pedrero et al. does not inherently possess the features of the claimed phosphor. This is because  $\text{Eu}^{+3}$  must be present in order for the phosphor to exhibit a red photoluminescence and Pedrero et al. clearly only disclose  $\text{Eu}^{+2}$  (their CsCl:Eu phosphor being prepared by combining CsCl and  $\text{EuCl}_2$ ). Accordingly, claim 21 is not anticipated.

With respect to newly submitted claims 25-34, Applicants respectfully submit these claims are patentable over the cited references because claim 25, from which the other claims directly or indirectly depend, includes a range for the amount of the Europium compound that is mixed with CsX. In as much as Pedrero et al. are silent as to the amount of the  $\text{EuCl}_2$  used, claims 25-34 cannot be anticipated.

2. 102(f)

Reconsideration is respectfully requested of the rejection of the following claims under 35 U.S.C. §102(f), based on the Office's assertion that Applicants did not invent the claimed subject matter:

- Claims 1, 2, 7, 8, 13, 20, 21 and 23 based on Struye et al. (U.S. Patent No. 6,479,835);

- Claims 1, 2, 4, 5, 7, 8, 10, 11, 13-16 and 20-24 based on U.S. Patent Application No. 09/745,795 (Patent Application Publication 2001/0007352);
- Claims 1, 2, 7, 8, 13, 20, 21 and 23 based on U.S. Patent Application No. 09/595,183 (now U.S. Patent No. 6,504,169); and,
- Claims 1, 2, 7, 8, 13, 20, 21 and 23 based on U.S. Patent Application No. 09/995,561.

Pursuant to MPEP §2137.01, it is to be noted that the parties executing an oath or declaration under 37 CFR 1.63 are *presumed* to be the inventors. Furthermore, pursuant to MPEP §2137, it is to be noted that when there is a published article identifying authorship or a patent identifying the inventorship that discloses subject matter being claimed in an application under exam, designation of authorship or inventorship *does not raise a presumption* of inventorship with respect to the subject matter disclosed in the article, or the subject matter disclosed but not claimed in the patent, so as to justify reliance on such designation as a basis for rejection under 35 U.S.C. §102(f).<sup>1</sup>

Accordingly, Applicants respectfully submit that these §102(f) rejections are improper because a presumption exists that the inventorship is correct in the present case and the mere recitation of related subject matter in the cited U.S. patents or patent applications is not sufficient to overcome this presumption. Reconsideration of the rejection of these claims is therefore respectfully requested.

Moreover, as discussed more fully below, the origin of the subject matter claimed in the instant application was a collaborative research effort, in which the presently claimed invention was, *a priori*, discovered prior to any *use* of such invention in the above-cited references.

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<sup>1</sup> As further evidence of the accuracy of the inventorship in the present application, Applicants respectfully call the Office's attention to the Property Rights Statements, submitted on August 8, 2002, which were executed by each inventor named in the present application and wherein the inventorship of the present application is acknowledged.

**G. 35 U.S.C. §103 Rejection**

Reconsideration is respectfully requested of the rejection of the following claims under 35 U.S.C. §103 as being obvious in view of the noted references:

- Claims 3-6, 9-12, 20, 22 and 24 based on Struye et al. (U.S. Patent No. 6,479,835);
- Claims 3, 6, 9 and 12 based on U.S. Patent Application No. 09/745,795 (Patent Application Publication 2001/0007352);
- Claims 3-6, 9-12, 20, 22 and 24 based on U.S. Patent Application No. 09/595,183 (now U.S. Patent No. 6,504,169); and,
- Claims 3-6, 9-12, 20, 22 and 24 based on U.S. Patent Application No. 09/995,561.

As noted above, the inventions as claimed are the result of a collaboration between Martin Devenney (of Symyx Technologies, Inc.), Casper Reaves (formerly of Symyx Technologies, Inc.), Paul Leblans and Lue Struye (both of Agfa-Gevaert, N.V.). Generally speaking, this collaboration was initiated by a proposal from the Agfa-Gevaert, N.V. inventors that Symyx Technologies, Inc. investigate cesium-halide phosphors generally, including for example CsBr. From this initial proposal, the inventors succeeded in developing and preparing the methods and materials now being claimed. *Inter alia*, the inventors jointly identified that cesium halides doped with europium halides are effective as potential X-ray storage phosphors. Accordingly, the inventions claimed in the present application are the result of this collaborative research.

In contrast to the present invention, U.S. Patent Nos. 6,479,835 ("the '835 patent") and 6,504,169 ("the '169 patent") are directed to a radiation image detector and a method of reading radiation, respectively, which utilize one embodiment of the present invention (i.e., a photostimulable phosphor screen prepared by a particular method, as recited in, for example, claims 8-10 of the '835 patent or claims 1-3 of the

'169 patent). In view of this, and based on the information available to the Applicants, it necessarily follows that the detector of the '835 patent and the method of the '169 patent could not have been developed until after the phosphor, and the particular method for the preparation thereof, were developed. Accordingly, there could not have been a 35 U.S.C. §102(f) communication from the inventors in the '835 or the '169 patents to the inventors here. Applicants therefore respectfully submit that the rejections, based on these references, are improper.

U.S. Patent Application No. 09/745,795 (Patent Application Publication 2001/0007352) ("the '795 application") is directed to a binderless storage phosphor screen characterized by a particular XRD spectrum, which utilize one embodiment of the present invention (i.e., a binderless phosphor screen, wherein the phosphor is a CsX:Eu stimuable phosphor prepared by a particular method, as recited in, for example, claims 4, 5, 7 and 8 of the '795 application). To-date, Applicants are aware of no evidence upon which to conclude that they received a complete and enabling disclosure, sufficient to satisfy 35 U.S.C. §102(f), of a binderless storage phosphor screen as characterized in the '795 application generally, nor a phosphor prepared by a particular method, such as that recited in, for example, claims 4, 5, 7 and 8 of the '795 application.

The Assignee, Symyx Technologies, Inc., and the undersigned have been unable to gain access to U.S. Patent Application No. 09/995,561 because it is not publically available at this time. However, they have no reason to believe that this application is prior art under 35 U.S.C. §102(f) for any purpose. Furthermore, even if it was prior art, they have no reason to believe it anticipates, or renders obvious, the invention as claimed.

In view of the foregoing, reconsideration of the rejection of these claims is respectfully requested.

#### **H. Obviousness-type Double Patenting**

##### *1. Rejection of Claims 1-13 and 20-24*

Reconsideration is respectfully requested of the rejection of claims 1-13 and 20-24 under the judicially created doctrine of obviousness-type double patent over the following:

- Claims 1 and 8 of U.S. Patent No. 6,479,835;
- Claims 1, 2, 4, 5, 7 and 8 of U.S. Patent Application No. 09/745,795 (Patent Application Publication 2001/0007352) (provisional rejection);
- Claims 1 and 2 of U.S. Patent Application No. 09/595,183 (now U.S. Patent No. 6,504,169); and,
- Claims 5-10 of U.S. Patent Application No. 09/995,561 (provisional rejection).

Applicants respectfully submit that the rejection of claims 1-13 and 20-24 under the judicially created doctrine of obviousness-type double patenting is improper in this instance, wherein *neither* the inventive entity nor the ownership of the pending application and any one of the cited references is the same.<sup>2</sup> Neither the Office action nor Applicants' independent research has identified any case law supporting the imposition of an obviousness-type double patenting rejection in these circumstances. For the reasons outlined below, we believe that a double patenting rejection in these circumstances is improper, and would deny Applicants their statutory right to obtain patent protection of subject matter for which they can establish priority.

It is acknowledged that MPEP §804, and in particular Charts I-B, II-B and/or III-B thereof, appear to authorize an initial double patenting rejection of claims where there is a common inventor, irrespective of whether there is a common assignee. However, it is believed that the rationale for such initial rejection is the possibility that the inventive entity for the claim in question is identical to that in the reference claim, even though the inventive entity for the application as a whole differs from that of the reference as a whole. If the record is unclear on this issue, the MPEP appears to authorize initial rejection to place the burden on Applicants to supply the relevant information.

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<sup>2</sup> Applicants would respectfully point out that the ownership of above-cited references are currently under review. Should it be concluded from this review that the ownership of the cited references and the present application are the same, the appropriateness of a terminal disclaimer will be considered at that time.



In the instant response, Applicants have explained that inventorship for the claims in issue in fact differs from that for the reference claims. Upon such explanation, it is respectfully submitted that the basis for double patenting evaporates, and the rejection should be withdrawn.

Moreover, if any obviousness test is applied in the circumstances, it is respectfully submitted that a two-way test, not a one-way test, should apply.<sup>3</sup> Under the two-way test, the *Graham v. John Deere Co.* (393 U.S. 1, 148 USPQ 459 (1966)) obviousness analysis is applied twice, once with the application claims as the claims in issue and once with the patent claims as the claims in issue. (See, e.g., MPEP §804 B.1.(b).)

If the two-way obviousness test is met as between claims of different assignees and different inventive entities, there may be a basis for an interference between the claims of the reference and the claims under examination. Where there is a potential for interfering subject matter, the two-way test must be run in any event; and, if it is satisfied, priority of invention may be resolved by interference. However, if the two-way test is not satisfied, the one-way test cannot reasonably and fairly be applied to deny Applicants their right to establish priority of invention in *ex parte* prosecution. Where common ownership is lacking, Applicants cannot resolve the double patenting issue by terminal disclaimer. (See, e.g., 37 C.F.R. §1.321(c).) Thus, if only the one-way test is satisfied, and it were applied to impose an obviousness-type double patenting rejection, Applicants would be entirely denied their right to a patent. Neither justice nor logic can support such a rule, which would preserve access to an interference where the claimed invention is the same, but create a forfeiture where there is a difference.

It is further submitted that application of a two-way test is not barred by the *In re Berg* doctrine. (See, e.g., *In re Berg*, 46 USPQ2d 1226 (Fed. Cir. 1998).) Pursuant to MPEP §804 B.1.(b), Applicants respectfully submit that: (i) they could not have filed all of the claims at issue here in a single application, and (ii) the delay in prosecution which

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<sup>3</sup> In this regard it is to be noted that the two-way test generally applies to a pending application and a later-filed patent. In this instance, the cited references have priority dates which are the same as, or later than, the present invention. Furthermore, the common provisional applications, upon which the present application as well as the cited '835 and '169 patents are based, are arguably more directly related to the present invention, as opposed to the inventions of the '835 and '169 patents. As such, these patents are arguably the later-filed in this instance. Furthermore, the cited applications are based upon provisional applications which do not have a priority date that is earlier than the provisional applications upon which the present application is based.

resulted in the later-filed patents being allowed ahead of the present application were beyond the Applicants' control.<sup>4</sup> It is recognized that, in *In re Berg*, the court required that the delay in prosecution be attributed to the PTO before the two-way test could be invoked. However, Applicants respectfully submit that the key requirement is not to establish who is responsible for the delay and sequence of issue, but rather simply that Applicants are not responsible. In *In re Berg* the claims at issue and the reference patent were commonly assigned and both the respective pace of prosecution and decision to issue the first granted patent were fully within the control of that assignee. Here, such is not the case. Applicants did not and could not control the filing, prosecution or decision to publish or issue the cited patent or patent application documents. Consequently, under the principles recognized in *In re Berg*, and MPEP §804 B.1.(b), no disability should be suffered by Applicants herein.

In as much as the two-way double patent rejection has not been applied here, Applications respectfully request reconsideration and withdrawal of the present rejection.

2. *Request for Additional References -  
Supplemental Information Disclosure Statement*

Applicants respectfully call attention to the Supplemental Information Disclosure Statement, and corresponding fee, being submitted pursuant to 37 C.F.R. §1.97(c)(2) and §1.98, and MPEP §609 with this Amendment B, wherein the following U.S. Patents are cited and copies are provided in response to the request on page 15, paragraph 2 of the present Office action: 6,495,850 (Application No. 09/595,182); 6,501,088 (Application No. 09/595,181); 6,512,240 (Application No. 09/595,487); and 6,528,812 (Application No. 09/596,519).

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<sup>4</sup> With respect to the delay in prosecution, Applicants would point out that once the present application was filed (i.e., upon entry into the U.S. national phase of the PCT International Application upon which the present application is based), Applicants have not been responsible for any prosecution delays that would have resulted in the cited patents being allowed prior to the present application.

**VERSION WITH MARKINGS SHOWING CHANGES MADE**

**IN THE SPECIFICATION:**

On page 1, line 5, the first paragraph was replaced.

**IN THE CLAIMS:**

Claim 1 has been amended as follows:

1. (Amended) A method for producing a CsX:Eu stimuable phosphor, wherein X represents [a halide selected from the group consisting of] Br, or a combination of Br and Cl [and combinations thereof], comprising the steps of:

- mixing CsX with an Europium compound selected from the group consisting of  
5 EuX'<sub>2</sub>, EuX'<sub>3</sub> and EuOX', X' being selected from the group consisting of F, Cl, Br, I and combinations thereof,
- heating said mixture at a temperature above 450°C,
- cooling said mixture, and
- optionally recovering the CsX:Eu phosphor.[.]

Claim 14 has been amended as follows:

14. (Amended) A method for manufacturing a binderless phosphor screen on a substrate containing a CsX:Eu stimuable phosphor, wherein X represents a halide selected from the group consisting of Br, Cl and combinations thereof comprising the steps of:

- 5 - bringing heatable multiple containers of CsX and an Europium compound selected from the group consisting of EuX'<sub>2</sub>, EuX'<sub>3</sub> and EuOX', X' being selected from the group consisting of F, Cl, Br, I and combinations thereof, together with the substrate [in a deposition chamber that is evacuated to at least 10<sup>-4</sup> mbar]; and
- 10 - depositing, by a method selected from the group consisting of physical vapor deposition, chemical vapor deposition or atomization technique, both said CsX and said Europium compound on a substrate in such a ratio that on said substrate a CsX phosphor, doped with between 10<sup>-3</sup> and 5 mol% of Europium, is formed.

Claim 15 has been amended as follows:

15. (Amended) A method for manufacturing a phosphor screen containing [of] a CsX:Eu stimuable phosphor, wherein X represents a halide selected from the group consisting of Br and Cl comprising the steps of:

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- mixing CsX with between  $10^{-3}$  and 5 mol% of an Europium compound selected from the group consisting of  $\text{EuX}'_2$ ,  $\text{EuX}'_3$  and  $\text{EuOX}'$ , X' being selected from the group consisting of F, Cl, Br, I and combinations thereof,
  - bringing said mixture in a container [and bringing this container] together with [the] a substrate [in a deposition chamber that is evacuated to at least  $10^{-4}$  mbar], and
  - depositing said mixture on [a] the substrate by a method selected from the group consisting of physical vapor deposition, chemical vapor deposition or atomization technique.

Claim 18 has been amended as follows:

18. (Amended) The phosphor of claim [14] 15, wherein a ranges from about 0.99 to about 0.95 and b ranges from about 0.01 to about 0.05.

Claim 19 has been cancelled.

Claim 20 has been amended as follows:

20. (Amended) A CsX:Eu compound prepared according to [either] one of the methods of claims 1, 2, 3, 4, 5 or 6.

Claims 25-34 have been added.

**CONCLUSION**

In view of the foregoing, favorable reconsideration and allowance of all pending claims is respectfully requested.

A check in the amount of \$1,374.00 is enclosed (\$264.00 for 9 additional claims, one additional independent claim; \$930.00 to cover a three month extension of time; and \$180.00 for the submission of a Supplemental Information Disclosure Statement). The Commissioner is hereby authorized to charge any additional fees which may be required to Deposit Account No. 19-1345.

Respectfully submitted,



Derick E. Allen, Reg. No. 43,468  
SENNIGER, POWERS, LEAVITT & ROEDEL  
One Metropolitan Square, 16th Floor  
St. Louis, Missouri 63102  
(314) 231-5400